

We will use the notation:

s1 denotes raw score exam 1, earns grade  $g1 = 2 + 0.4 (s1 - 15) \geq 0$

s2 denotes raw score exam 2\*, earns grade  $g2 = 2 + 0.4 (s2 - 11) \geq 0$

s3 denotes raw score exam 3\*, earns grade  $g3 = 2 + 0.35 (s3 - 11) \geq 0$

g4 denotes GRADE for exam 4

g5 denotes GRADE for exam 5

h1 denotes overall homework GRADE earned through 11-7-09

h2 denotes GRADE on hw 11-10-09

h3 denotes GRADE on hw 11-17-09

h4 denotes GRADE on hw 11-24-09

h5 denotes GRADE on hw 12-1-09

h6 denotes GRADE on hw 12-8-09

\*add 1 point bonus if applicable to you

### Calculating your course grade:

The command to calculate a grade is shown as input line "In[8]" of the screenshot below. Numbering and bracketing of input lines occurs *automatically* as you begin type `grade[18, 16, 14, 0, 0, 3.62, 0, 0, 0, 0, 0]`, so don't type "In[8]" or change to bold font either as it is all automatically done.

In[8]= **grade[18, 16, 14, 0, 0, 3.62, 0, 0, 0, 0, 0]**

**Click at the very bottom of the entire file** and begin typing the command `grade[18, 16, 14, 0, 0, 3.62, 0, 0, 0, 0, 0]`. **Or edit one of the already existing input lines with your own data then SHIFT ENTER.**

Of course use your own scores/grades.

Finish by holding the SHIFT key down and pressing the RETURN key. This will initiate calculation and you will immediately see the results. Look at lines "In[8]" and "Out[8]" of the screenshot below for an example.

**Screenshot:**

`grade[s1, s2, s3, g4, g5, h1, h2, h3, h4, h5, h6]` (then ) SHIFT ENTER

In[8]:= `grade[18, 16, 14, 0, 0, 3.62, 0, 0, 0, 0, 0]`

Out[8]/MatrixForm=

exam 1 grade	3.2
exam 2 grade	4.
exam 3 grade	3.2
exam 4 grade	0
exam 5 grade	0
avg grade hw to 11-7-09	3.62
hw grade 11-10-09	0
hw grade 11-17-09	0
hw grade 11-24-09	0
hw grade 12-1-09	0
hw grade 12-8-09	0
course grade (round up by 0.1 for registrar)	2.12943

So this student will have *already earned* 2.12943 as of 11 - 7 - 09. This is the worst case scenario in which  $g4 = g5 = h2 = h3 = h4 = h5 = h6 = 0.0$ .

Here is a *projected* course grade under the scenario that all remaining exam grades are 3.0 and all remaining homework grades are 3.5.

In[9]:= `grade[18, 16, 14, 3.0, 3.0, 3.62, 3.5, 3.5, 3.5, 3.5, 3.5]`

Out[9]/MatrixForm=

exam 1 grade	3.2
exam 2 grade	4.
exam 3 grade	3.2
exam 4 grade	3.
exam 5 grade	3.
avg grade hw to 11-7-09	3.62
hw grade 11-10-09	3.5
hw grade 11-17-09	3.5
hw grade 11-24-09	3.5
hw grade 12-1-09	3.5
hw grade 12-8-09	3.5
course grade (round up by 0.1 for registrar)	3.33943

The student *just misses* 3.5 course grade under this scenario since the cut point for 3.5 is 3.4 (see the syllabus).

## Details.

Your overall homework GRADE h1 through 11-7-09 will be prepared the week of 11-9-09 and posted to Angel. You will be informed when this has been done. To calculate your already earned course grade you need your scores s1, s2, s3, grade avg for the first 9 homeworks h1, and such future grades as may become known later or *projected* now.

Go to an MSU computer lab, navigate to [www.stt.msu.edu/~lepage](http://www.stt.msu.edu/~lepage) and then to the class website there.

Once on the class website click the file GRADE.

This action will automatically launch and initialize a *Mathematica* "notebook" on your MSU lab computer.

If you are asked "Do you want to automatically evaluate all initialization cells?" click "Yes." Here is how it goes.

Suppose your known scores/grades are

$$s1 = 18$$

$$s2 = 16 \text{ (including the 1 point bonus applicable to this student)}$$

$$s3 = 14$$

$$h1 = 3.62 \text{ (this student's overall hw grade as of 11-7-09)}$$

Your *already earned* grade is the grade you have if all future work is GRADED 0.0. Here is what to do to calculate it.

Go to the bottom of the entire file and click there. Then just start typing the line shown below followed by "SHIFT RETURN." It must end by holding the shift key down and pressing return. **You may instead just edit the input lines below with your own numbers followed by SHIFT ENTER.** The format for data entry is

grade[s1, s2, s3, g4, g5, h1, h2, h3, h4, h5, h6] (then ) SHIFT ENTER

```
grade[18, 16, 14, 0, 0, 3.62, 0, 0, 0, 0, 0]
```

exam 1 grade	3.2
exam 2 grade	4.
exam 3 grade	3.2
exam 4 grade	0
exam 5 grade	0
avg grade hw to 11-7-09	3.62
hw grade 11-10-09	0
hw grade 11-17-09	0
hw grade 11-24-09	0
hw grade 12-1-09	0
hw grade 12-8-09	0
course grade (round up by 0.1 for registrar)	2.12943

So this student will have *already earned* 2.12943 as of 11 - 7 - 09. This is the worst case scenario in which  $g_4 = g_5 = h_2 = h_3 = h_4 = h_5 = h_6 = 0.0$ .

Here is a *projected* course grade under the scenario that all remaining exam grades are 3.0 and all remaining homework grades are 3.5.

```
grade[18, 16, 14, 3.0, 3.0, 3.62, 3.5, 3.5, 3.5, 3.5, 3.5]
```

exam 1 grade	3.2
exam 2 grade	4.
exam 3 grade	3.2
exam 4 grade	3.
exam 5 grade	3.
avg grade hw to 11-7-09	3.62
hw grade 11-10-09	3.5
hw grade 11-17-09	3.5
hw grade 11-24-09	3.5
hw grade 12-1-09	3.5
hw grade 12-8-09	3.5
course grade (round up by 0.1 for registrar)	3.33943

The student *just misses* 3.5 course grade under this scenario since the cut point for 3.5 is 3.4 (see the syllabus).

```
? grade
```

```
Global`grade
```

```
grade[s1_, s2_, s3_, g4_, g5_, h1_, h2_, h3_, h4_, h5_, h6_] :=
Module[{g1 = Max[0, 2 + 0.4 (s1 - 15)], g2 = Max[0, 2 + 0.4 (s2 - 11)], g3 = Max[0, 2 + 0.4 (s3 - 11)]},
MatrixForm[{{exam 1 grade, g1}, {exam 2 grade, g2}, {exam 3 grade, g3}, {exam 4 grade, g4},
{exam 5 grade, g5}, {avg grade hw to 11-7-09, h1}, {hw grade 11-10-09, h2},
{hw grade 11-17-09, h3}, {hw grade 11-24-09, h4}, {hw grade 12-1-09, h5},
{hw grade 12-8-09, h6}, {course grade (round up by 0.1 for registrar),
0.8 Mean[{g1, g2, g3, g4, g5}] + 0.2 (  $\frac{9h1}{14} + \frac{5}{14}$  Mean[{h2, h3, h4, h5, h6}]) }]]]
```

```
grade[15, 11, 11, 2, 2, 2, 2, 2, 2, 2, 2]
```

```
(
    exam 1 grade          2
    exam 2 grade          2
    exam 3 grade          2
    exam 4 grade          2
    exam 5 grade          2
    avg grade hw to 11-7-09 2
    hw grade 11-10-09     2
    hw grade 11-17-09     2
    hw grade 11-24-09     2
    hw grade 12-1-09      2
    hw grade 12-8-09      2
    course grade (round up by 0.1 for registrar) 2.)
```